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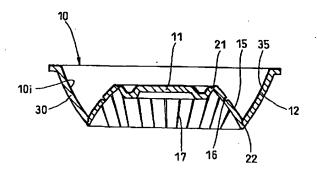
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		EAO3 GAO3

# (54) 【発明の名称】 伸張式合成樹脂容器の構造

### (57)【要約】

所定の容器形状となすようにした伸長式合成樹脂容器において、容器使用時、特には熱湯等の使用時により大きな強度、確実な剛性を備えた容器の構造を提供する。 【解決手段】 底面部11から立設された容器壁面12に折り曲げられた反転部15を有し該反転部をその上下に設けた下側ヒンジ部21及び上側ヒンジ部22を介して上方へ反転し伸張することによって所定の容器形状10Aとなすようにした合成樹脂容器10であって、前記合成樹脂容器は合成樹脂発泡層31を有する単一のシート状物30の成形品によって構成されているとともに、該シート状物の少なくとも容器内面側10iとなる面には熱収縮フィルム層35が形成されている。

【課題】 使用時に折り曲げられた容器壁面を伸長して



#### 【特許請求の範囲】

【請求項1】 底面部(11)から立設された容器壁面 (12) に折り曲げられた反転部(15)を有し該反転 部をその上下に設けた下側ヒンジ部(21)及び上側ヒ ンジ部(22)を介して上方へ反転し伸張することによ って所定の容器形状(10A)となすようにした合成樹 脂容器(10)であって、前記合成樹脂容器は合成樹脂 発泡層(31)を有する単一のシート状物(30)の成 形品によって構成されているとともに、該シート状物の 少なくとも容器内面側(10i)となる面には熱収縮フ ィルム層(35)が形成されていることを特徴とする伸 張式合成樹脂容器の構造。

#### 【発明の詳細な説明】

[0001]

【発明の属する技術分野】との発明は合成樹脂容器に関 し、特には折り曲げられた容器壁面を使用時に伸長して 所定の容器形状となすようにした伸長式合成樹脂容器の 改良構造に関する。

[0002]

【従来の技術】例えばカップタイプの即席麺等において 20 は、食器を兼ねるどんぶりまたはカップ状の包装用容器 に即席食材が収容されて販売されている。との容器とし ては軽量、断熱等の機能性から発泡合成樹脂の成形品が 多用されている。

【0003】従来のこの種容器はどんぶりまたはカップ としての最終形状に成形されているので、移送、保管上 非常に嵩張るという問題があった。殊に、売場等におけ るディスプレイ時には数段に積み重ねて陳列されるので あるが、売場の面積には限界があるのでたくさん並べる が十分されない場合には、需要者の心理上購入意欲が減 退して、販売促進上好ましくない。

【0004】上のような状況に鑑み、本出願人は、先に 特開平9-150833として、伸張式合成樹脂容器の 構造を提案した。との構造からなる包装用容器は、容器 壁面にヒンジ部を介して折り曲げられた反転部を有し、 使用時には該反転部を上方へ反転し伸張して所定の容器 形状に形作るものである。このような伸張式容器にあっ ては、容器の壁面の高さが低減され、最終形状に成形さ れた通常容器と比して、移送、保管上極めて有利である のみならず、売場等におけるディスプレイ時にはより多 くの商品を積み重ねて陳列されることができるようにな り、販売促進上大きなメリットを有する。

【0005】しかるに、との伸張式合成樹脂容器の構造 にあっては、使用時である反転部の伸張時における、容 器壁面の強度、剛性が確実で十分であることが要求され る。特に前記したような容器付き即席食品に使用される 場合にあっては、そのまま熱湯が使用されるものである から使用上の安全面という点から強い要請がある。

[0006]

【発明が解決しようとする課題】との発明は前記の点に 鑑みなされたもので、使用時に折り曲げられた容器壁面 を伸長して所定の容器形状となすようにした伸長式合成 樹脂容器において、容器使用時、特には熱湯等の使用時 により大きな強度、確実な剛性を備えた容器の構造を提 供しようとするものである。

[0007]

【課題を解決するための手段】すなわち、この発明は、 底面部から立設された容器壁面に折り曲げられた反転部 を有し該反転部をその上下に設けた下側ヒンジ部及び上 側ヒンジ部を介して上方へ反転し伸張することによって 所定の容器形状となすようにした合成樹脂容器であっ て、前記合成樹脂容器は合成樹脂発泡層を有する単一の シート状物の成形品によって構成されているとともに、 該シート状物の少なくとも容器内面側となる面には熱収 縮フィルム層が形成されていることを特徴とする伸張式 合成樹脂容器の構造に係る。

[0008]

【発明の実施の形態】以下添付の図面に従ってこの発明 を詳細に説明する。図1はこの発明の伸張式合成樹脂容 器の一実施例を示す斜視図、図2は図1の中央縦断面 図、図3は図2の伸張状態を示す断面図、図4は図3の 壁面部の拡大断面図、図5はこの発明構造を示す要部の 模式断面図、図6は同じくその熱収縮時における要部の 模式断面図、図7は伸張式合成樹脂容器の製造工程を示 す成形品の概略断面図である。

【0009】図1ないし図3に示した実施例の伸張式合 成樹脂容器10は即席麺用の包装用容器であって、底面 部11から立設された容器壁面12の円周方向の一部に ことができない。商品点数が少なかったりあるいは補充 30 折り曲げられた反転部15を有し、使用時には図3のよ うに該反転部15をその上下に設けた下側ヒンジ部21 及び上側ヒンジ部22を介して上方へ反転し伸張すると とによって所定の容器形状10Aとなすようにしたもの である。図示の例では、容器壁面12の反転部15は底 面部11に近接して形成されているが、前記特開平9-150833号公報記載のように、容器壁面の中間部に 設けてもよいものである。なお、図示の符号16は反転 部15の反転を容易にするための補助ヒンジ部、17は 同じく反転を容易するための放射状リブである。

> 【0010】との合成樹脂容器10は、図4に示すよう に、軽量性及び断熱性を考慮して合成樹脂発泡層31を 有する単一のシート状物30の成形品30Pによって構 成されているとともに、該シート状物の少なくとも容器 内面側10iとなる面には熱収縮フィルム層35が形成 されている。合成樹脂発泡層31としては例えば厚さ2 ~3 mmの発泡ポリスチレン樹脂がこの種食品用容器と して好適に使用される。熱収縮フィルム層35として は、公知のポリエチレンフィルム、ポリプロフィレンフ ィルム、ポリスチレンフィルム、ポリエステルフィルム 50 等が使用される。これらの合成樹脂発泡層31及び熱収

縮フィルム層35は積層一体化された単一のシート状物 30として形成される。なお、シート状物30として は、容器外面側の装飾や印刷のために必要に応じその他 のフィルム層が形成することができる。

【0011】との合成樹脂容器10の成形は、図7に概 略図示するように、(A)の単一のシート状物30を、 (B) のように真空成形 (プラグアシストを含む) によ って所定の容器形状に成形される。このとき、ヒンジ部 21,22を介して反転部15も一体に形成されること はいうまでもない。単一のシート状物30から成形され 10 た容器形状の成形品30Pは(A)のk線から切断され 個別に分離された後、図7の(C)のように、その底面 部11が上になるように上下反対に載置され、図示しな い押圧具によって反転部15をそのヒンジ部21,22 から容器内方へ押し下げ折り曲げて伸長式容器 10とさ れる。なお、図7の(C)図の容器10は図1及び図2 のものと上下が逆になっている。

【0012】次に、との発明の伸長式容器10の作用に ついて説明する。前記したように、との発明の伸長式容 上下に設けた下側ヒンジ部21及び上側ヒンジ部22を 介して上方へ反転し伸張して所定の容器形状10Aとな す。壁面部12に形成された反転部15は円周方向に連 続しかつ上部が大径となる傾斜面であるから、該反転部 15が一旦反転された後は容易に復元することなく連続 する壁面部12として機能する。

【0013】また、この発明構造にあっては、シート状 物30の少なくとも容器内面側10iとなる面には熱収 縮フィルム層35が形成されているものであるから、容 器形状10Aとなった容器内側に熱湯を注いだときに、 該熱収縮フィルム35はその熱によって収縮作用を生ず る。図5及び図6は上側ヒンジ部22における拡大模式 図である。前記したように、この容器は単一のシート状 物30の成形品30Pよりなるものであるから、ヒンジ 部22においてはその合成樹脂発泡層31は図5のよう に気泡Sが圧縮された部分31aとなっている。熱湯に より熱収縮フィルム35が図6の矢印eのように収縮す ると、ヒンジ部22の該圧縮部分31aはそれによって 引張られ、該部分31 aの圧縮された気泡Sは大きくな り該部分31bの合成樹脂発泡層31の断面積が増し、 その結果ヒンジ部22の強度が大きくなって腰強くな る。

【0014】上のような熱収縮フィルム層35の収縮に よる合成樹脂発泡層31の断面積の増加は成形時におい て気泡が圧縮された部分に生ずる。実施例では、補助ヒ ンジ部16あるいは放射状リブ17においても同様に生 ずる。また、容器外面側のヒンジ部21にもある範囲で 上のような現象が生ずると考えられる。なお、実施例で は熱収縮フィルム層35を容器内面側のみに設けたが、 熱収縮フィルム層35を容器内外の両面に設けてもよい ものである。

#### [0015]

【発明の効果】以上図示し説明したように、この発明構 造によれば、折り曲げられた容器壁面を使用時に伸長し て所定の容器形状となすようにした伸長式合成樹脂容器 において、合成樹脂発泡層を有する単一のシート状物の 成形品によって構成し、該シート状物の少なくとも容器 内面側となる面には熱収縮フィルム層が形成されている ものであるから、容器使用時、特には熱湯等の使用時に より大きな強度、確実な剛性を備えた容器とすることが できる。との発明構造は、使用時に熱湯が用いられる容 器10は折り曲げられた反転部15を、使用時に、その 20 器付き即席食品等において、安全性等の面から大きな利 点を有する。

#### 【図面の簡単な説明】

【図1】との発明の伸張式合成樹脂容器の一実施例を示 す斜視図である。

【図2】図1の中央縦断面図である。

【図3】図2の伸張状態を示す断面図である。

【図4】図3の壁面部の拡大断面図である。

【図5】との発明構造を示す要部の模式断面図である。

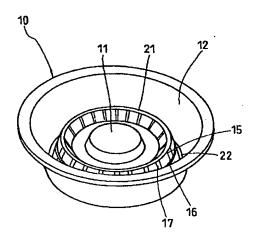
【図6】同じくその熱収縮時における要部の模式断面図 30 である。

【図7】伸張式合成樹脂容器の製造工程を示す成形品の 概略断面図である。

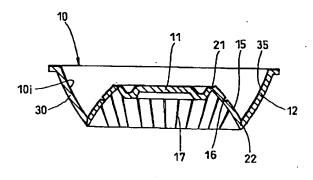
### 【符号の説明】

- 10 伸張式合成樹脂容器
- 11 底面部
- 12 容器壁面
- 15 反転部
- 21 下側ヒンジ部
- 22 上側ヒンジ部
- 30 シート状物
  - 31 合成樹脂発泡層
  - 熱収縮フィルム層

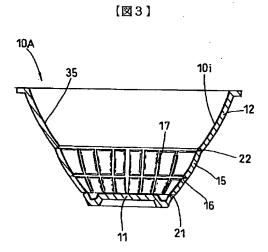
【図1】



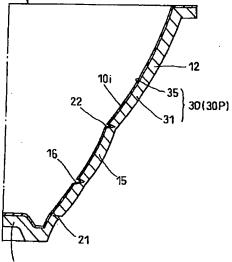
【図2】



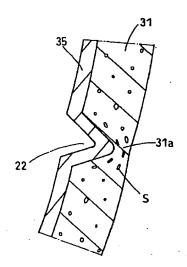
【図4】



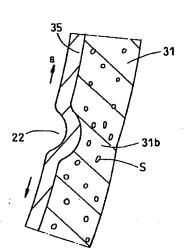
10(10A)



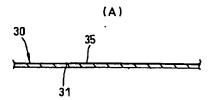
【図5】



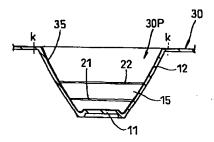
【図6】



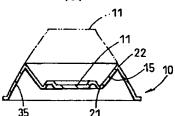
[図7]



(B)



(C)



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F Term (for reference)

BAO3 GAO3

(54) [Title of the Invention] Structure of an Expandable and Shrinkable Synthetic Resin Container

(57) [Abstract]

[Task] For an expandable and stretchable synthetic resin container designed and made in such a manner that at the time of use a folded wall face is stretched to achieve a pre-

<sup>(21)</sup> Application No. Hei 10 / 1998 - 168517

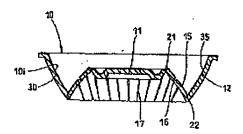
<sup>(22)</sup> Date of Application : June 16, 1998 (1998. 6. 16)

determined container configuration,

to provide a structure of such a container having larger strength and secure rigidity at the time of use, especially at the time of use for hot water, etc.

#### [Means to Solve the Problem Point]

A synthetic resin container arranged in such a manner that a folded turn over section, 15, is provided at the wall face, 12, of the container provided to rise upward from a bottom section, 11, and a pre-determined container configuration, 10 A, may be achieved by turning over upward and stretching said turn over section through a lower hinge section, 21, and an upper hinge section, 22, provided respectively at the upper and lower sides thereof, and the above mentioned synthetic resin container is constituted with a molded member of a single sheet-like member, 30, having a synthetic resin foaming layer, 31, and a thermal shrinkage film layer, 35, is formed on the face which becomes at least an inner face side of the container, 10 i, of said sheet—like member.



### [What we claim is]

### [Claim 1]

In a synthetic resin container (10) arranged in such a manner that a folded turn-over section (15) is provided at the wall face (12) of the container, being provided to rise upward from a bottom section (11), and a pre-determined container configuration (10 A) may be achieved by turning over upward and stretching a turn-over section (15) through a lower hinge section (21) and an upper hinge section (22) provided respectively at the upper and lower sides thereof,

a structure of an expandable and stretchable synthetic resin container characterized in that the above mentioned synthetic resin container is constituted with a molded member of a single sheet like member (30) having a synthetic resin foaming layer (31), and a thermal shrinkage film layer (35) is formed on the face which becomes at least an inner face side of the container (10 i) of said sheet –like member.

[Detailed Explanation of the Invention]

[0001]

[Technology Field to which the present Invention Belongs]

The present invention relates to a synthetic resin container, and especially pertains to an improved structure of an expandable and stretchable synthetic resin container which can be made into a pre-determined container configuration by stretching the folded container wall face at the time of use.

[0002]

[Conventional Technology]

For example, with instant noodle, etc. of a cup type, instant food is accommodated and sold in a packaging container of a cup form, which functions also as tableware. As such a container, use is often made of a molded product of a foamed synthetic resin in view of the light weight, heat insulation, etc.

[0003]

Conventionally, as containers of such a type are molded in a final configuration as a bowl or a cup, there was been a problem in that they are bulky when transporting or during storage. Especially, they are heaped up in several stages when displayed in a store, etc., but as there is only a limited space in a sales area, many of them can not be displayed. If the number of products displayed is small or if not sufficiently replenished, purchase desire of consumers is reduced due to their psychology and this is not desirable in terms of sales promotion.

[0004]

In view of these circumstances, the Applicant previously proposed a structure of an expandable and stretchable synthetic resin container as Japanese Laid Open Patent Publication No. Hei 9 / 1997 – 150833. A container for packing of this structure has a turn- over section folded through a hinge at the container wall face, and at the time of use, said turn- over section is turned over upward, thereby achieve a pre- determined container configuration. With such an expandable and stretchable container, the height of a container wall face is reduced, and in comparison with a normal container formed to a final configuration, it is extremely advantageous in transportation and storage and furthermore, as a large number of products can be piled up and displayed at a sales area, this is a great merit in sales promotion.

[0005]

However, with the structure of such an expandable and stretchable synthetic resin container, the wall face of a container is required to have sufficient strength and

rigidity at the time of stretching of the turn- over section for use. Especially in a case of use for instant food in a container as described above, for hot water is used in that state, there is a strong demand for safety in use.

### [0006]

[Problem Points that the Invention Tries to Solve]

The present invention has been made in view of the above - mentioned problem points, and the purpose of the present invention is to provide a structure of an expandable and stretchable synthetic resin container made in such a manner that at the time of use, a folded container wall face is stretched to achieve a pre- determined container configuration, said container having great strength and secure rigidity at the time of use, especially at the time when hot water, etc. is used.

### [0007]

[Means by which to Solve the Problem Points]

That is, in a synthetic resin container arranged in such a manner that a folded turnover section is provided at the wall face of the container, being provided to rise upward
from a bottom section, and a pre- determined container configuration may be achieved
by turning over upward and stretching said turn- over section through a lower hinge
section and an upper hinge section provided respectively at the upper and lower sides
thereof,

the present invention relates to a structure of an expandable and stretchable synthetic resin container characterized in that the above - mentioned synthetic resin container is constituted with a molded member of a single sheet- like member having a synthetic resin foaming layer, and a thermal shrinkage film layer is formed on the face which becomes at least an inner face side of the container of said sheet—like member.

### [0008]

[Modes of Working of the Invention]

In the following, we shall explain in detail the present invention by referring to the drawings attached hereunder. Fig. 1 is an obliquely seen drawing which shows one example embodying the invention of the expandable and stretchable synthetic resin container in accordance with the present invention. Fig. 2 is a central vertical cross sectional view of the container shown in Fig. 1. Fig. 3 is a cross sectional view which shows the expanded and stretched state of the container shown in Fig. 2. Fig. 4 is an enlarged cross sectional view of the wall face section shown in Fig. 3. Fig. 5 is a schematic cross sectional view of the main section which shows the structure in accordance with the present invention. Fig. 6 is similarly a schematic cross sectional view of the major section at the time of thermal shrinkage. Fig. 7 is a rough cross

sectional view of a molded product which shows the production steps of the expandable and stretchable synthetic resin container in accordance with the present invention.

[0009]

The expandable and stretchable synthetic resin container, 10, in the example embodying the invention shown in Fig. 1 through Fig. 3 is a container for packing instant noodle: there is provided a turn- over section, 15, which is folded partially in the circumferential direction of the container wall face, 12, provided to stand vertically from the bottom face, 11, and at the time of use, as shown in Fig. 3, a pre- determined container configuration, 10 A, may be achieved by turning over upward and stretching said turn- over section, 15, through a lower hinge section, 21, and an upper hinge section, 22, provided respectively at the upper and lower sides thereof. In the example embodying the invention shown in the drawings, the turn- over section, 15, of the container wall face, 12, is formed adjacent to the bottom section, 11, however, as described in Japanese Laid Open Patent Publication No. Hei 9 / 1997 – 150833, it is permissible to provide it at the mid- section of the container wall face. Here, Symbol 16 is an auxiliary hinge which makes the turn- over of the turn- over section, 15, easier, and 17 is a radial rib which also makes the turn- over of the turn- over section, 15, easier.

### [0010]

As shown in Fig. 4, this synthetic resin container, 10, is constituted with the molded product, 30 P, of the single sheet-like member, 30, having the synthetic resin foaming layer, 31, by taking into account the light weight and heat insulation, and the thermal shrinkage film layer, 35, is formed at least on the face which becomes the inner face side of the container, 10 i, of said sheet-like member. As a synthetic resin foaming layer, 31, for example, use can be favorably made of a foaming polystyrene resin of a thickness of 2 to 3 mm for a food container of this type. For the thermal shrinkage layer, 35, use may be made of films known in the art such as polyethylene film, poly profilene (sic: note by translator: probably a misspelling of propylene) film, polystyrene film, polyester film, etc. These synthetic resin foaming layer, 31, and thermal shrinkage film layer, 35, are layered and formed as a single sheet-like member, 30. Here, as a sheet-like member, 30, it is possible to form other film layer / layers, as required, for decoration or printing of the outer surface of a container.

#### [0011]

This synthetic resin container, 10, is formed roughly as shown in Fig. 7: a single sheet-like member, 30, of (A) is molded into a pre-determined container configuration by vacuum molding (including plug assist) in (B). It is a matter of course that at this time,

the turn- over section, 15, is formed as a unitary member with the hinge sections, 21 and 22. The molded products, 30 P, of a container configuration molded from the single sheet- like member, 30, are cut and separated individually along the k line of (A), and after this, as shown in (C) of Fig. 7, it is positioned up side down so that the bottom section, 11, may be positioned at the top, and by use of a pressing tool (not shown in the drawing), the turn- over section, 15, is pressed down and folded into the container from the hinge sections, 21 and 22, thereby making an expandable and stretchable container, 10. Here, the container, 10, of (C) in Fig. 7 is reversed up side down from the one shown in Fig. 1 or Fig. 2.

### [0012]

Next, we shall explain the actions of the expandable and stretchable container in accordance with the present invention. As described above, with the expandable and stretchable container, 10, the folded turn over section, 15, is turned over upward through a lower hinge section, 21, and an upper hinge section, 22, provided respectively at the upper and lower sides thereof and stretched at the time of use, thereby forming the pre- determined container configuration, 10 A. Since the turn over section, 15, formed on the wall face section, 12, is continuous in the circumferential direction, and has an inclined face becoming larger in diameter upward, it does not easily return to the initial state once said turn over section, 15, is turned over, and functions as a continuing wall face section, 12.

### [0013]

In addition, with this structure in accordance with the present invention, as the thermal shrinkage film layer, 35, is formed at least on the face which becomes the inner face side of the container, 10 i, of the sheet-like member, 30, when hot water is poured into the inner side of the container having the container configuration, 10 A, said thermal shrinkage film, 35, causes a shrinking action by that heat. Fig. 5 and Fig. 6 are enlarged schematic views at the upper side hinge section, 22. As described above, since this container is constituted with the molded product, 30 P, of the single sheet-like member, 30, there is a section, 31 a, in which gas bubbles, S, are compressed as shown in Fig. 5, in the synthetic resin foaming layer, 31, at the hinge section, 22. When the thermal shrinkage film, 35, is shrunken as indicated with an arrow, e, in Fig. 6, said compressed section, 31 a, of the hinge section, 22, is pulled by it, the compressed gas bubbles, S, in said section, 31 a, are expanded, the cross sectional area of the synthetic resin foaming layer, 31, of said section, 31 b, increases, and as a result, the strength of the hinge section, 22, increases and it becomes stiff.

[0014]

The increase in cross sectional area of the synthetic resin foaming layer, 31, due to the shrinkage of the thermal shrinkage film layer, 35, as described above, is caused at the section in which gas bubbles are compressed at the time of molding. In this example embodying the invention, a similar phenomenon takes place in the auxiliary hinge section, 16, and the radial rib, 17. In addition, it may be considered that a phenomenon similar to the above occurs to some extent in the hinge section, 21, at the outer face side of the container. Here, in this example embodying the invention, the thermal shrinkage film layer, 35, is provided only on the inner face side of the container, however, it is permissible to provide thermal shrinkage film layers, 35, on both inner and outer surfaces of a container.

[0015]

### [Effects of the Invention]

As illustrated in the drawings and explained above, with the structure in accordance with the present invention, in an expandable and stretchable synthetic resin container arranged in such a manner that a folded turn over section is provided at the wall face of the container, which can be expanded and stretched at the time of use to provide a predetermined container configuration, since the above mentioned synthetic resin container is constituted with a molded member of a single sheet like member having a synthetic resin foaming layer, and a thermal shrinkage film layer is formed on the face which becomes at least an inner face side of the container of said sheet—like member, a container having high strength and secure rigidity at the time of use as a container, especially as a container for hit water, etc. can be obtained. The structure in accordance with the present invention has a great advantage in terms of safety for instant food in a container for which hot water is used at the time of use.

### [Simple Explanation of the Drawings]

[Fig. 1] is an obliquely seen drawing which shows one example embodying the invention of the expandable and stretchable synthetic resin container in accordance with the present invention.

[Fig. 2] is a central vertical cross sectional view of the container shown in Fig. 1.

[Fig. 3] is a cross sectional view which shows an expanded and stretched state of the container shown in Fig. 2.

[Fig. 4] is an enlarged cross sectional view of the wall face section shown in Fig. 3.

[Fig. 5] is a schematic cross sectional view of the major section which illustrates the structure in accordance with the present invention.

[Fig. 6] is similarly a schematic cross sectional view of the major section at the time of thermal shrinkage.

[Fig. 7] is a rough cross sectional view of a molded product indicating the production steps of the expandable and stretchable synthetic resin container.

[Explanation of the Symbols]

10 is an expandable and stretchable synthetic resin container,

11 is a bottom face section,

12 is a container wall face,

15 is a turn-over section,

21 is a lower side hinge section,

22 is an upper side hinge section,

30 is a sheet-like member,

31 is a synthetic resin foaming layer, and

35 is a thermal shrinkage film layer.

Fig. 1

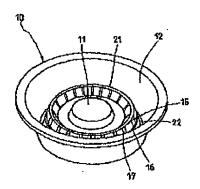


Fig. 2

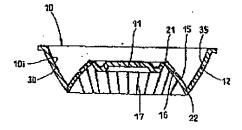


Fig. 3

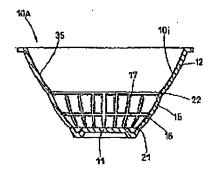


Fig. 4

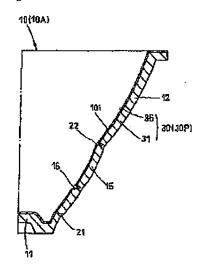


Fig. 5

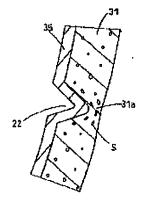


Fig. 6

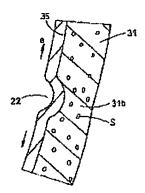


Fig. 7

